

Open Standards for Architecture Modeling

Dwayne Hardy
Open Systems Joint Task Force

22 September 2005

OSJTF SoS Architecture Tasking



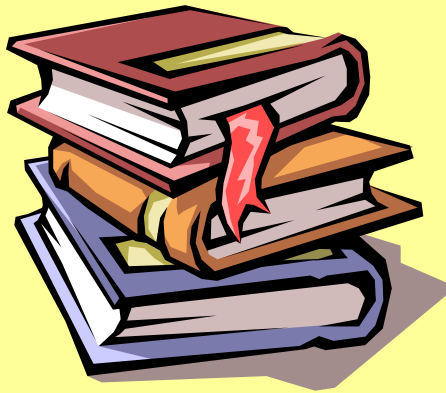
“Provide the (DoD) acquisition community with the capability to model system architectures based on standard methods and descriptions that enable reliable, near real-time system of systems analysis.”

Dr. Garber, April 2004

Essentially leverage OMG's Model Driven Architecture and similar open standards to improve architecture descriptions

Practices for Describing System Architectures

Past



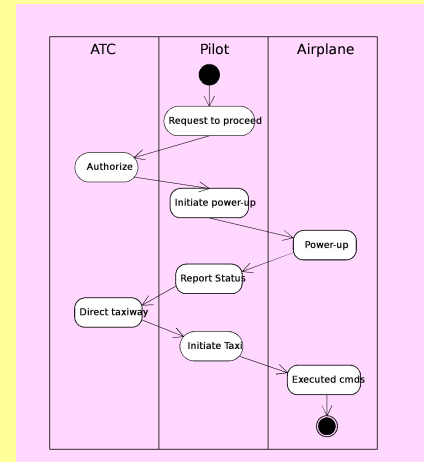
Model-based

- View & process neutral
- Standards-based data model
- Formal & executable

Multiple Views

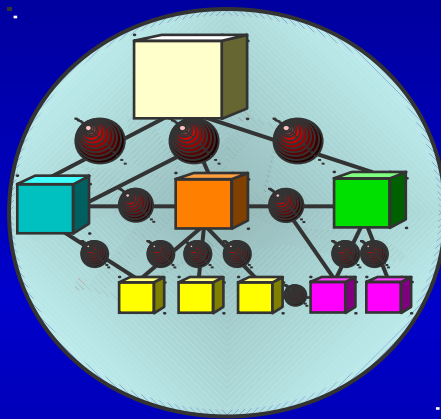
- Stakeholder-centric
- Intra-view consistent
- Dynamically generated

Future

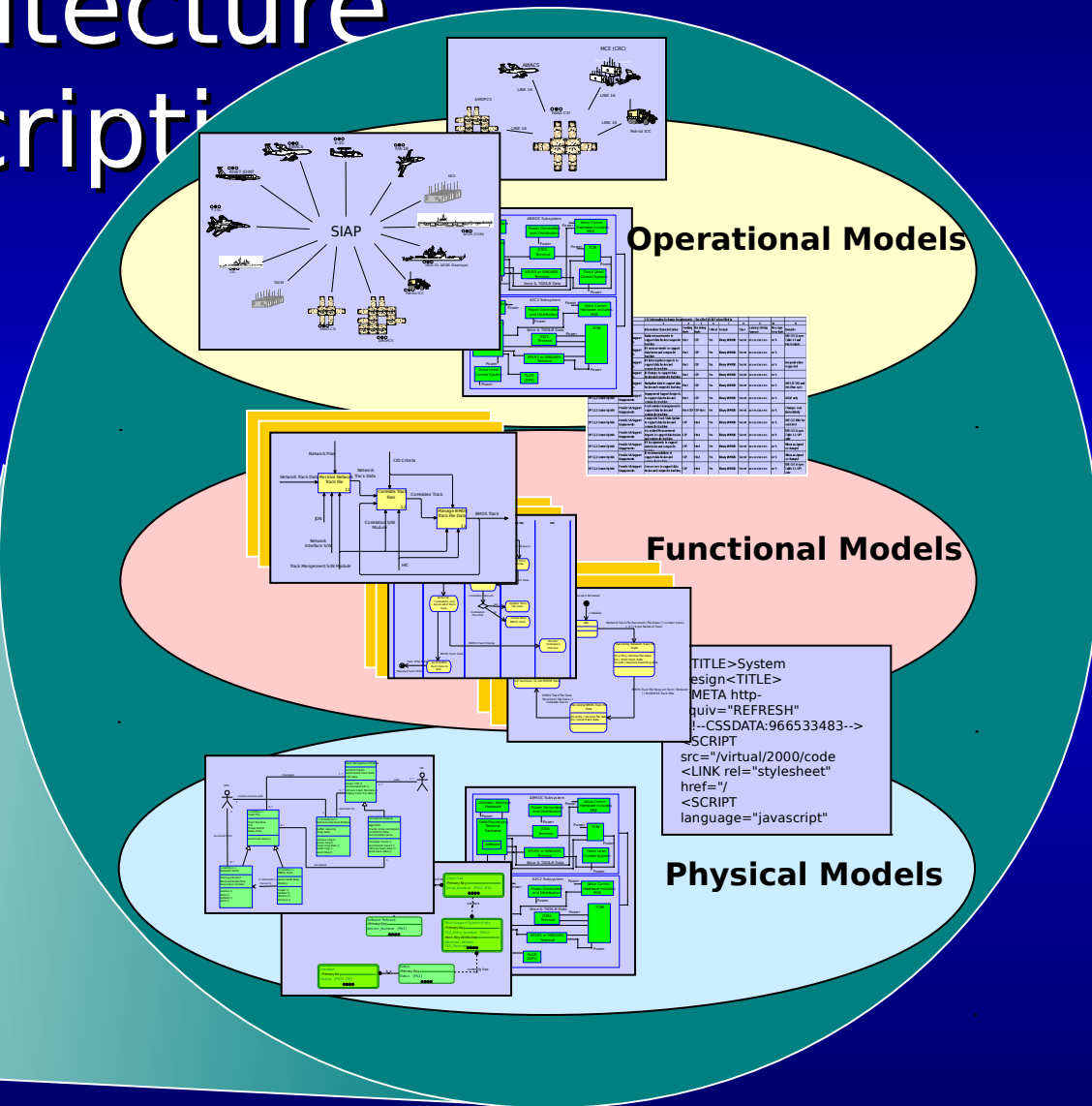


Moving from Document centric to Model centric

Model-based Architecture Description

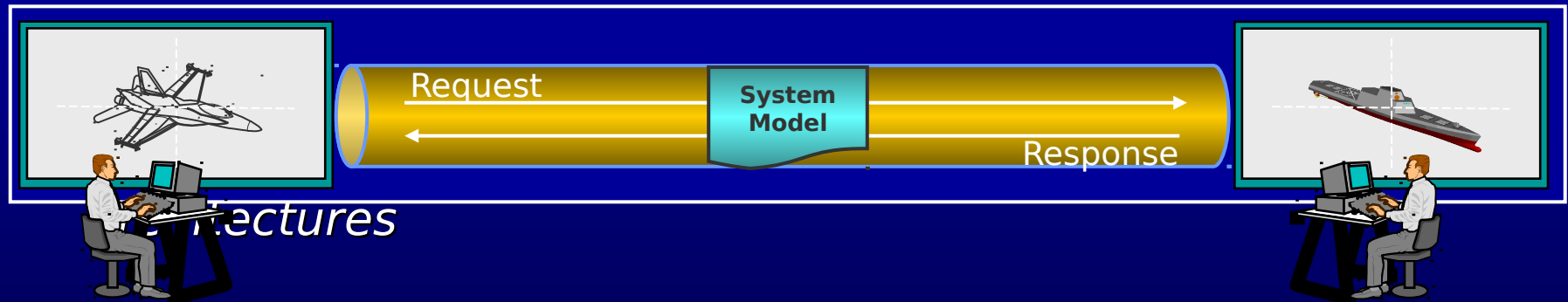
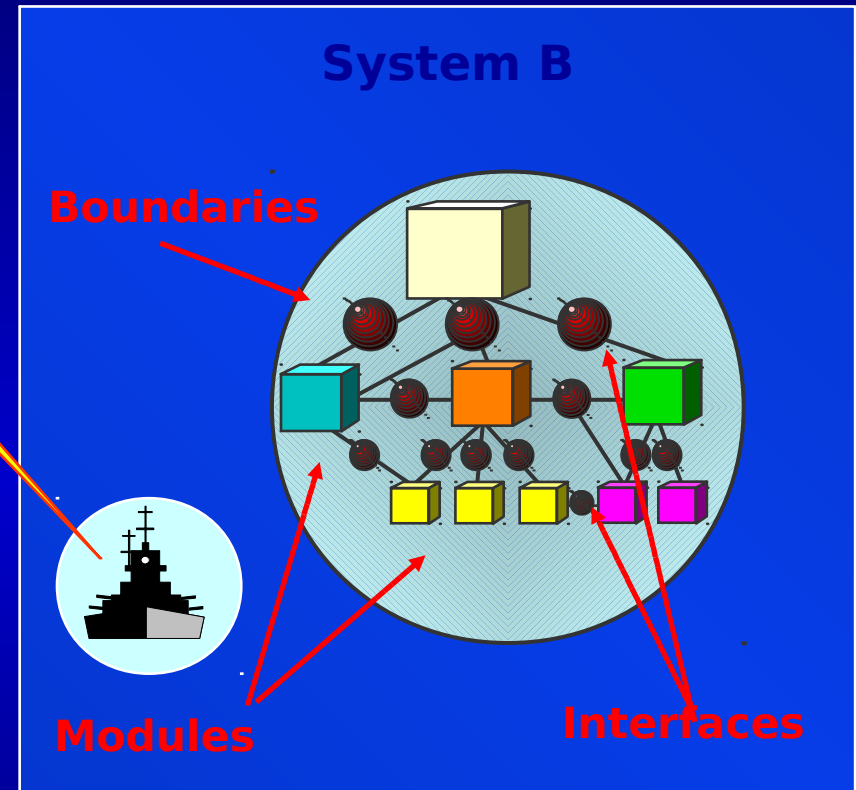
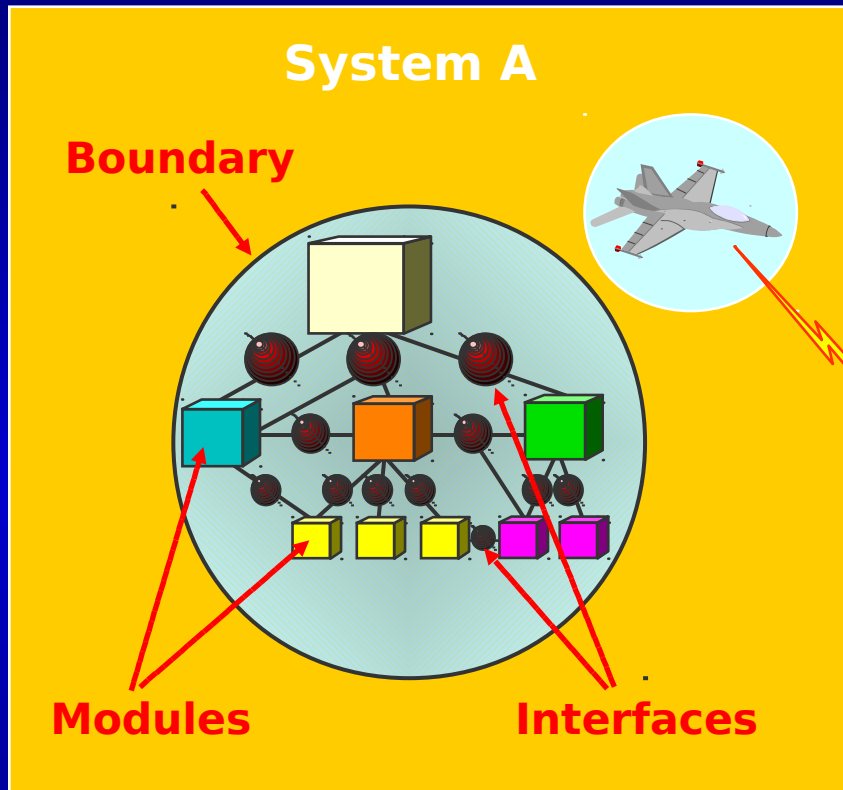


Architecture
Dictionary
and Database

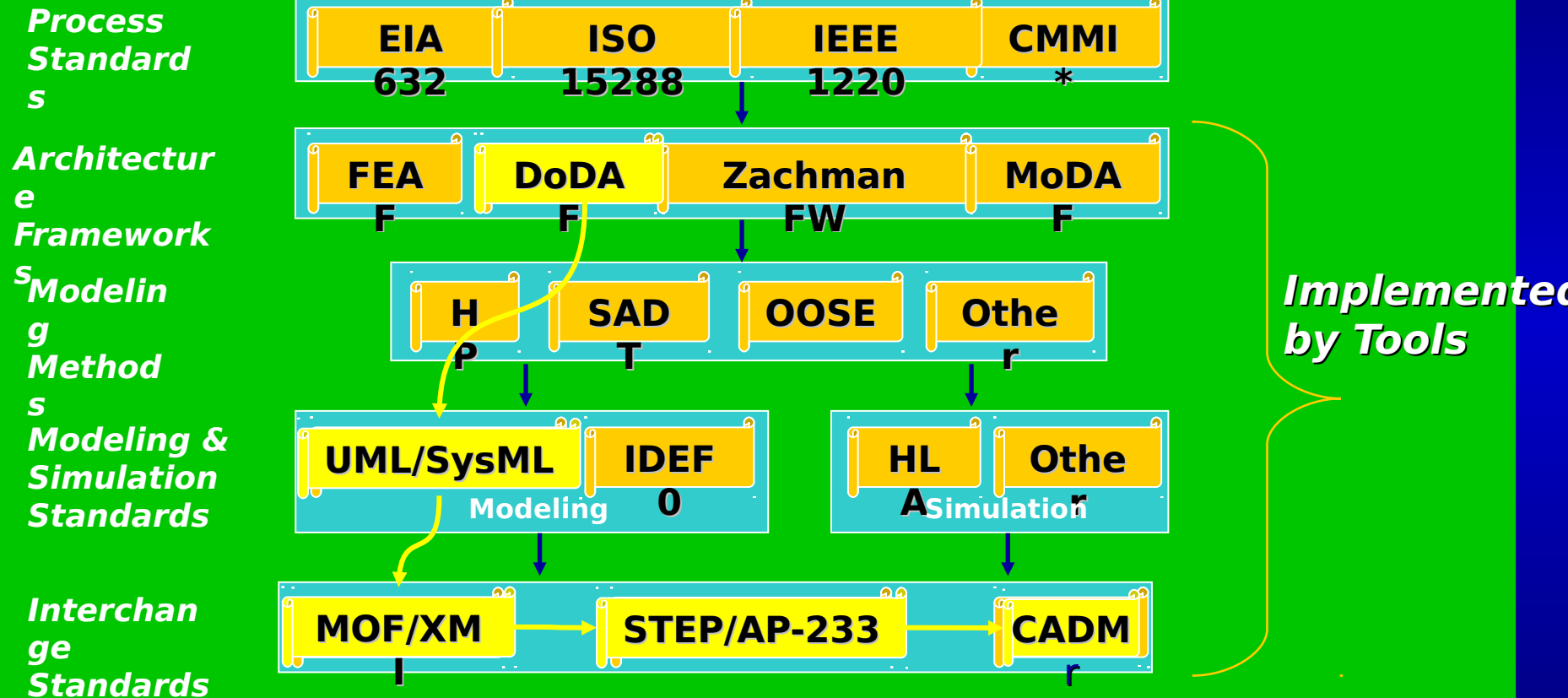


System Architecture Views

Collaborative System-of-Systems Engineering



Context Diagram for Architecture & Systems Engineering Standards



This shows only one thread through these standards, others are necessary as well.

OSJTF Architecture Modeling Activities

- **Open Standards**
 - **DoDAF (DoD Architecture Framework)**
 - Define standardized architecture views & system's information
 - Data interchange path to data sets based on CADM (Core Architecture Data Model) schema
 - **SysML - Object Management Group SE DSIG**
 - Standard language and notation for modelling all types of systems
 - **AP233 (ISO 10303-233)**
 - Use neutral information model to exchange CADM data with other data models
- **Standards-based Tool Interoperability Framework & Demos**
 - Create forum where tool vendors can demonstrate their implementations of related standards
 - Apply related standards to DCGS-A architecture development as a proof-of-concept
- **Community Coordination**
 - NII, JS, JFCOM, FCS, DCGS-A, DMSO, NOA, MOD, NIST, NASA, NDIA, NCOIC, INCOSE, OMG, the Open Group, ISO and related standards bodies and tool vendors

DoD Architecture Plan

DoD Architecture Strategic Plan 2004 to 2007

Enabling Net-Centricity

GLOBAL
INFORMATION
GRID



**Proving
this
path
...! and
UPDM
for this
path!**

CORE
ARCHITECTURE
DATA MODEL

CADM

ARCHITECTURE
FRAMEWORKS

1997
C4ISR AF
v2.0

DoDAF
v1.0

CADM Ontology

AP 233

2006

DoDAF

Net Centric
- Executables
- Portfolio Management

GOVERNANCE



Architecture

CIO Executive Board

DoDAF